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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/071,099	02/11/2002	Jai Young Woo	SEC.936	1563

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EXAMINER	
NGUYEN, THONG Q	
ART UNIT	**PAPER NUMBER**
2872	

DATE MAILED: 09/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/071,099	WOO ET AL.	
	Examiner	Art Unit	
	Thong Q Nguyen	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 June 2004 and 27 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6-14 and 16-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-4,6-8 and 18* is/are allowed.

6)☐ Claim(s) *9-14, 16-17 and 20-21* is/are rejected.

7)☒ Claim(s) *19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 27, 2004 has been entered.

Response to Amendment

2. The present Office action is made in response to the amendment filed on 6/21/2004.

It is noted that in the mentioned amendment, applicant has made amendments to claims 1-2. Regarding to the claim 2, the amendment as filed on 6/21/04 amends claim 2; however, applicant has not used a proper status identifier. In other words, amended claim 2 must use the status identifier thereof "Currently amended" instead of "Original" as shown in claim 2 listed in the amendment of 6/21/04. However, in the spirit cooperation, the status identifier of claim 2 is corrected by the Examiner. Applicant should follow the instructions/requirements as set forth in 37 CFR. 1.121 from now on.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 9-11 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holmes et al (U.S. Patent No. 4,627,009) in view of Kawashima (U.S. Patent No. 5,955,739) and Staehle (U.S. Patent No. 4,277,133) (all of record).

Holms et al disclose a computerized stage assembly supporting a wafer. The stage as described in columns 2-4 and shown in figures 1-6 comprises a wafer supporting element, a first mechanism for moving the wafer supporting element in a X-direction, a second mechanism for moving the wafer supporting element in a Y-direction perpendicular to the X-direction, a third mechanism for moving the wafer supporting element in a Z-direction perpendicular to the plane defined by X and Y direction, a fourth mechanism for rotating and tilting the wafer supporting element in any desired position, and a computerized control system for controllable operating the movements of the stage. Holms et al also disclose that 1) the image of the wafer can be displayed in a display system (columns 1 and 5 and fig. 6); 2) each of the mechanism comprises a stepping motor for providing the power/operation of the mechanism (columns 3-4); and 3) the tilting angle and speed of tilting operation can be controlled by the user (columns 4-6). As such the computerized stage assembly provided by Holms et al meets the features recited in the claims except the feature relating to the use of optical unit for observation and at least one wafer stopper for alignment the wafer on a support. It is noted that the use of a microscope having an optical unit for viewing/observing a wafer which is located in a stage able to move in three directions and also in a tilted manner in clearly known to one skilled in the art as

can be seen in the microscope provided by Kawashima. See columns 5 for the details relating to the movable stage and columns 14-16 and fig. 14 for the microscope having an optical unit comprises at least one objective lens system (100) and eyepiece system (98) for observation. Thus, it would have been obvious to one skilled in the art at the time the invention was made to utilize the computerized stage assembly provided by Holms et al in a microscope having an optical unit as provided by Kawashima for the purpose of providing a means for observation of the wafer located in the movable stage.

Regard to the use of at least one wafer stopper for aligning the wafer on a support as recited in claim 9, it is noted that the use of a stop device having two legs for keeping a slide from falling and simultaneously providing a means for alignment the slide under the field of view of an observation is known to one skilled in the art as can be seen in the microscope provided by Staehle. See columns 3-4 and fig. 1. One skilled in the art will recognize that (s)he will arrange the stop device (34, 36) for maintaining the slide (32) on the platform (28) having two curved legs (34) in a suitable position so that the legs will provide an alignment of the slide on the platform. Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the combined product provided by Holms et al and Kawashima by using a stop device for circling the wafer as suggested by Staehle for the purpose of alignment the wafer.

5. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holmes et al in view of Kawashima and Staehle as applied to claim 9 above, and further in view of Schram (U.S. Patent No. 4,938,654, of record).

The combined product as provided by Holms et al, Kawashima and Staehle as described above does not clearly disclose that the wafer is secured to the wafer supporting element via a vacuum chuck and a motor for generating power to the vacuum chuck; however, the use of vacuum pressure for holding a wafer is known to one skilled in the art as can be seen in the system provided by Schram. In particular, Schram teaches the use of vacuum chuck for holding a wafer by vacuum pressure. In regard to the use of a motor for generating power to operate a vacuum chuck, such use is well known to one skilled in the art as an inherent feature from the mechanism for operation in the art of Schram. Thus, it would have been obvious to one skilled in the art at time the invention was made to modify the combined product provided by Holmes et al, Kawashima and Staehle by using vacuum chuck and mechanism having at leas tone motor for generating power to the vacuum chuck suggested by Schram for the purpose of securing the wafer to its support element.

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holms et al in view of Kawashima and Staehle as applied to claim 9 above, and further in view of An (U.S. Patent No. 5,852,300, of record).

The combined product as provided by Holmes et al, Kawashima and Staehle as described above does not disclose the use of detecting elements for detecting

the presence of the wafer on its support element; however, the use of detecting elements with the movable stage for detecting a flat region/area of a wafer and thus the presence of the wafer is a wafer inspection system is known in the art as can be seen in the system provided by An. See columns 2 and 5. Thus, it would have been obvious to one skilled in the art at time the invention was made to modify the system provided by Holmes et al, Kawashima and Staehle by using detecting elements as suggested by An for the purpose of detecting the flat zone of a wafer and inherently the presence of the wafer on a support element for the purpose of inspecting the wafer.

7. Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nomura et al (U.S. patent No. 4,948,330) in view of Kawashima (U.S. Patent No. 5,955,739) (both of record).

Nomura et al disclose an alignment system for alignment/position a reticle or mask in an optical system having a stage supporting the reticle or mask and means for operating the stage in x, y, and z directions and in a rotation about direction perpendicular to the plane defined by x and y directions and also in a tilting direction. The system as described by Nomura et al in columns 2-4 and the control system for controlling the operation of the stage in columns 6-7 comprises a stage (11) for supporting a reticle (14), a stage moving system having a x-stage (7) and its driving components, a y-stage (5) and its driving components, a z-stage 915) and its driving components and the mechanism for rotating and tilting the stage (11). Regarding to the wafer stoppers as recited in claim 21, it is noted

that the stage (11) supporting the reticle (14) comprises four openings (11b) disposed around the stage in opposite sides of the center point of the stage for the purpose of alignment/holding the reticle. As such the controlled stage assembly provided by Nomura et al meets the features recited in the claims except the feature relating to the use of optical unit for observation.

It is noted that the use of a microscope having an optical unit for viewing/observing a wafer which is located in a movable stage in three direction and also in a tilted manner in clearly known to one skilled in the art as can be seen in the microscope provided by Kawashima. See columns 5 for the details relating to the movable stage and columns 14-16 and fig. 14 for the microscope having an optical unit comprises at least one objective lens system (100) and eyepiece system (98) for observation. Thus, it would have been obvious to one skilled in the art at the time the invention was made to utilize the controlled stage assembly provided by Nomura et al in a microscope having an optical unit as provided by Kawashima for the purpose of providing a means for observation of the reticle located in the movable stage.

Allowable Subject Matter

8. Claims 1-4, 6-8 and 18 are allowed over the cited art.

9. Claim 19 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

10. A) Regarding to claims 1 and its dependent claims, the amendments to claim 1 are sufficient to overcome the rejection of claims 1 and its dependent claims, and thus the rejection of those claims over the art of record is now withdrawn.

B) Regarding to the claims 9 and its dependent claims, applicant's arguments filed on 6/21/2004 have been fully considered but they are not persuasive for the following reasons.

Regarding to the rejection of claims 9-11, and 16-17 under 35 U.S.C. 103(a) as being unpatentable over Holmes et al in view of Kawashima and Staehle, applicant's arguments provided in the amendment, pages 11-12, have been fully considered but they are not persuasive.

First, in the arguments provided in the mentioned pages of the amendment, applicant has used the same arguments which used to argue the rejection of claims and its dependent claims. However, such arguments are not persuasive because the device claimed in present claims 1 and its dependent claims is different from the device as claimed in claim 9 and its dependent claims. Applicant should note that there are two important differences between the device recited in claim 1 and the device of claim 9 as follow: First, the device of claim 1 claims at least two wafer stoppers with specific limitations related to their locations with respect to the central pivot of the wafer while such a feature is not claimed in the device of claim 9; and second, the device of claim 1 recites the stage tilting unit for rotating an end of the sample piece stage in a particular

range and also is moved in three directions by the stage moving unit while such a structure is not claimed in the device of claim 9. As a result, the arguments used to argue the rejection of claims 1 and its dependent claims cannot applied to the rejection of claim 9 and its dependent claims.

Second, regarding to the applicant's arguments related to the use of the clip with legs as provided by Staehle (see amendment, pages 7-8), applicant's arguments have been fully considered but they are not persuasive. Applicant is respectfully invited to review the feature related to the wafer stopper recited in the claim 9 which claims a stopper for aligning the wafer on the platform. There is not any specific limitation(s) for the stopper as well as the aligning manner provided by the stopper. The use of the clip having legs as provided by Staehle is clearly provide a means for alignment the slide or any object to be viewed on its support.

Third, in response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the stage system provided by Staehle comprises a stop device (34, 36) for maintaining the slide (32) on the platform (28) having two curved legs (34) for the purpose of preventing the movement or the drop of the

specimen from the stage. It is noted that the movement of the microscope with a rotatable frame will cause the specimen drop from the stage if the stop device is not being used. The stage provided by Holms is rotated and tilted so the specimen located on the stage is able to drop out from the stage. Thus, one skilled in the art with general knowledge will modify the system provided by Holms et al by using the stop device provided by Staehle for the purpose of preventing the movement or the drop of the specimen from the stage.

Fourth, regarding to the rejection of claims under 35 U.S.C. 103(a) as being unpatentable over Holms et al in view of Kawashima, Staehle and An, applicant's arguments provided in the amendment, page 12, have been fully considered but they are not persuasive. Applicant should note that the art of An is directed to the use of detecting elements for detecting the presence of the wafer on its support element. See columns 2 and 5. Thus, it would have been obvious to one skilled in the art at time the invention was made to modify the system provided by Holmes et al and Kawashima by using detecting elements as suggested by An for the purpose of detecting the flat zone of a wafer and inherently the presence of the wafer on a support element for the purpose of inspecting the wafer.

C) Regarding to the rejection of claims 20-21 over the art of Nomura et al and Kawashima, applicant's arguments provided in amendment, pages 12-13 have been fully considered but they are not persuasive. Applicant argues that the stage of Nomura et al is used to support a reticle while the stage of the device claimed is used to support a semiconductor wafer. However, there is not any

specific limitation(s) related to the so-called "semiconductor wafer" to make the so-called "semiconductor wafer" from a reticle of the prior art. Further, the use of a stage for supporting a semiconductor wafer or a mask or a reticle is well known to one skilled in the art as can be seen in either Patent No. 5,841,250 (column 1, lines 8-10) or Patent No. 4,408,126 (column 1, lines 5-8) which a copy of each is attached with this Office action.

Regarding to applicant's arguments that there is not any modification for use an optical unit having an objective lens system and an eyepiece lens system for viewing a reticle, the Examiner respectfully invites the applicant to review the art of Kawashima in columns 14-16 and fig. 14 which discloses such use of an optical unit in a system having a movable stage supporting a reticle.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thong Q Nguyen whose telephone number is (571) 272-2316. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thong Q Nguyen
Primary Examiner
Art Unit 2872

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